

II. Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-24 (canceled)

25. (Currently Amended) A device comprising:

a tubular member having a liquid inlet/outlet and an opening;

a base member contained through the opening and disposed in the tubular member;

a plurality of detection substances fixed to the base member wherein each detection substance comprises a predetermined chemical structure and is fixed to the base member at a predetermined fixed position;

a source of a liquid comprising at least one target substance;

a light shielding box wherein the tubular member is disposed in the light shielding box;

means connected to the tubular member at the opening for drawing liquid into the tubular member from the source, and discharging the liquid from the tubular member via the inlet/outlet; and

means positioned outside of the tubular member for identifying the target substance after the target substance has reacted with a corresponding one of the detection substances fixed to the base member, the identifying means comprising:

means for receiving emissions propagating through the wall of the tubular member and from the predetermined fixed positions.

26. (Previously Presented) The device of claim 25 further comprising means for effecting relative movement between the receiving means and the tubular member.

27. (Previously Presented) The device of claim 26 wherein the movement is translational and/or rotational.

28. (Previously Presented) The device of claim 25 further comprising a cylindrical structure having a longitudinal axis;

wherein the base member has:

an unrolled configuration in which:

the detection substances are arranged in a predetermined order along the longitudinal length of the base member; and

each pair of adjacent detection substances are spaced at a predetermined longitudinal spacing along the longitudinal length of the base member; and

a rolled configuration in which:

the base member is rolled around the cylindrical structure to define a plurality of circumferentially-extending rolls;

each pair of adjacent rolls in the plurality of circumferentially-extending rolls are spaced at a predetermined axial spacing along the longitudinal axis of the cylindrical structure;

the base member is disposed in the tubular member;

each detection substance is exposed outwards at the corresponding predetermined fixed position relative to the outer surface of the cylindrical structure; and

each predetermined fixed position is defined by:

the predetermined order along the longitudinal length of the base member,

the predetermined longitudinal spacings along the longitudinal length of the base member, and

the predetermined axial spacings along the longitudinal axis of the cylindrical structure.

29. (Previously Presented) The device of claim 25 further comprising a core wherein the base member is spirally wound around the core.

30. (Previously Presented) The device of claim 25 wherein the reactions at the corresponding predetermined fixed positions result in an identification pattern.
31. (Previously Presented) The device of claim 25 wherein the emissions are in the form of fluorescence.
32. (Previously Presented) The device of claim 25 wherein the emissions are in the form of chemiluminescence.
33. (Previously Presented) The device of claim 25 wherein the emissions are in the form of electromagnetic waves.
34. (canceled)
35. (Currently Amended) The device of claim 25 34 wherein the receiving means is disposed in the light shielding box.
36. (Previously Presented) The device of claim 25 further comprising a light source for irradiating excitation light through the wall of the tubular member.
37. (Previously Presented) The device of claim 36 wherein the receiving means comprises at least one photodetector.
38. (Previously Presented) The device of claim 37 further comprising at least one optical fiber connected to the light source and the photodetector.
39. (Previously Presented) The device of claim 38 wherein the irradiating and the receiving occur simultaneously.

40. (Previously Presented) The device of claim 38 further comprising:
at least one other optical fiber;
wherein the receiving means further comprises at least one other photodetector;
and
wherein the one other optical fiber is connected to the light source and the one other photodetector.

41. (Previously Presented) The device of claim 40 further comprising a rod member spaced from the tubular member in a parallel relation wherein a tip section of each optical fiber is connected to the rod member.

42. (Previously Presented) The device of claim 40 further comprising an annular member surrounding the tubular member wherein a tip section of each optical fiber is connected to the annular member.

43. (Previously Presented) A device comprising:
a light shielding box;
a tubular member disposed in the light shielding box;
a base member disposed in the tubular member;
a plurality of detection substances fixed to the base member wherein each detection substance comprises a predetermined chemical structure and is fixed to the base member at a predetermined fixed position;
means connected to the tubular member for drawing liquid into the tubular member and discharging the liquid from the tubular member wherein at least one target substance is suspended in the liquid and reacts with the detection substances at the corresponding predetermined fixed positions; and
means positioned outside of the tubular member for identifying the target substance after the target substance has reacted with the detection substances, the identifying means comprising:

means for irradiating excitation light through the wall of the tubular member; and

means for receiving emissions propagating through the wall of the tubular member and from the predetermined fixed positions in response to the excitation light.

44. (Currently Amended) The device of claim 43 34 wherein the receiving means is disposed in the light shielding box.